

Archives of Biochemistry and Biophysics

VOLUME 234

1984



ACADEMIC PRESS, INC.

(Harcourt Brace Jovanovich, Publishers)

San Diego Orlando New York London

Toronto Montreal Sydney Tokyo

Copyright © 1984 by Academic Press, Inc.
All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (21 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1984 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0003-9861/84 \$3.00

MADE IN THE UNITED STATES OF AMERICA

CONTENTS OF VOLUME 234

NUMBER 1, OCTOBER 1984

COMMUNICATION

- Retinoic Acid Metabolism by a System Reconstituted with Cytochrome P-450
Maria Anna Leo, Shinji Iida, and Charles S. Lieber 305
- Catalytically Active Hybrids Formed *in Vitro* between Large and Small Subunits
of Different Procaryotic Ribulose Bisphosphate Carboxylases
T. John Andrews, Donna M. Greenwood, and David Yellowlees 313
- Metabolism of 1-O-Alkyl-2-acetyl-*sn*-glycerol by Washed Rabbit Platelets: For-
mation of Platelet Activating Factor
Kiyoshi Satouchi, Makoto Oda, Kunihiko Saito, and Donald J. Hanahan 318

BIOLOGICAL OXIDATIONS AND BIOENERGETICS

- Immunochemical Analysis of the Membrane Proteins of Rat Liver and Zajdela
Hepatoma Mitochondria
*B. Dean Nelson, F. Kabir,
J. Kolarov, K. Luciaková, S. Kuzela, N. Latruffe, and M. Lindén* 24
- Light Inhibition of Respiration Is Due to a Dual Function of the Cytochrome
 b_6-f Complex and the Plastocyanin/Cytochrome *c*-553 Pool in *Aphanocapsa*
Gerhard Sandmann and Richard Malkin 105
- Disposition of Polar and Nonpolar Residues on Outer Surfaces of Transmembrane
Helical Segments of Proteins Involved in Proton Translocation
A. E. Senior 138
- The Effect of pH on the Conversion of Superoxide to Hydroxyl Free Radicals
Mark S. Baker and Janusz M. Gebicki 258

ENZYME MECHANISMS AND METABOLISM

- The pH Dependence and Group Modification of β -D-Xylosidase from *Bacillus pum-*
ilus: Evidence for Sulfhydryl and Histidyl Groups
*Hilda Kersters-Hilderson, Elisa Van Doorslaer, Mia Lippens,
and Clement K. De Bruyne* 61
- Comparison of the Properties of Two Hydrogenases from the Photosynthetic
Bacterium *Chromatium vinosum*
Juan L. Serra, Maria J. Llama, and David O. Hall 73
- Kinetics of Hydrolysis of Peptide Thioester Derivatives of Arginine by Human
and Bovine Thrombins
Robert R. Cook, Brian J. McRae, and James C. Powers 82
- Purification and Characterization of Pregastric Esterase from Calf
B. J. Sweet, L. C. Matthews, and T. Richardson 144
- Binding and Reactivity at the "Glucose" Site of Galactosyl- β -galactosidase (*Esch-*
erichia coli)
R. E. Huber, M. T. Gaunt, and K. L. Hurlburt 151
- Siderophore Utilization and Iron Uptake by *Rhodopseudomonas sphaeroides*
Mark D. Moody and Harry A. Dailey 178

HORMONE STRUCTURE AND FUNCTION

- Naturally Occurring 24,25-Dihydroxyvitamin D₃ Is a Mixture of Both C-24*R* and C-24*S* Epimers
Seiichi Ishizuka, Toru Takeshita, and Anthony W. Norman 97
- Thymopoietin Radioreceptor Assay Utilizing Lectin-Purified Glycoprotein from a Biologically Responsive T Cell Line
Tapan Audhya, Mary Anne Talle, and Gideon Goldstein 167
- Anti-insulin-like (Diabetogenic) Peptides in Pituitary Extracts: Role of Oxytocin
Frances A. Stephenson and Alan D. Rogol 214
- Oxytocin: Anti-insulin-like Effects in Isolated Fat Cells
Frances A. Stephenson and Alan D. Rogol 230

LIPIDS AND PROSTAGLANDINS

- Phospholipid Transmethylation in the Membrane of Human Neutrophils and Lymphocytes
Yukie Niwa, Tsuyoshi Sakane, and Shinkichi Taniguchi 7
- The Effect of Hypolipidemic Drugs on Plant Lipid Metabolism
Juan Sánchez and Paul K. Stumpf 45
- Regulatory Aspects of Rat Liver Mitochondrial Phospholipase A₂: Effects of Calcium Ions and Calmodulin
J. M. De Winter, J. Korpancova, and H. van den Bosch 243
- Enhanced *de Novo* Synthesis of Phosphatidic Acid and Phosphatidylinositol in Rat Pancreatic Islets Exposed to Nutrient or Neurotransmitter Stimuli
Leonard Best and Willy J. Malaisse 253

MEMBRANES, CELL SURFACES, AND RECEPTORS

- Diphtheria Toxin Induces Leakage of Acidic Liposomes
Ching-San Lai, Vladimir Kushnaryov, Tomasz Panz, and Riccardo Basosi 1
- Isolation and Characterization of a Specific Receptor for Biologically Active Phorbol and Ingenol Esters
Mohammed Shoyab and Raleigh Boaze, Jr. 197
- Phospholipid Asymmetry in the Isolated Sarcoplasmic Reticulum Membrane
L. Herbette, J. K. Blasie, P. Defoor, S. Fleischer, R. J. Bick, W. B. Van Winkle, C. A. Tate, and M. L. Entman 235
- Phosphate Uptake by Kidney Epithelial (LLC-PK₁) Cells
Lalita Noronha-Blob, Charles Filburn, and Bertram Sacktor 265

NEUROCHEMISTRY

- Calmodulin-Dependent Protein Kinase (Kinase II) Which Is Involved in the Activation of Tryptophan 5-Monooxygenase Catalyzes Phosphorylation of Tubulin
Takashi Yamauchi and Hitoshi Fujisawa 89

OXYGENASES, MICROSOMES, AND P-450 REACTIONS

- Metabolism *in Vivo* of Furazolidone: Evidence for Formation of an Open-Chain Carboxylic Acid and α -Ketoglutaric Acid from the Nitrofuran in Rats
Kiyoshi Tatsumi, Hitoshi Nakabeppu, Yoshihiro Takahashi, and Shigeyuki Kitamura 112

The Association of Cytochrome <i>P</i> -450 and NADPH-Cytochrome <i>P</i> -450 Reductase in Phospholipid Membranes	<i>Gerald T. Miwa and Anthony Y. H. Lu</i>	161
--	--	-----

PHYSICAL BIOCHEMISTRY

Thermodynamic Nonideality as a Probe of Macromolecular Isomerizations: Application to the Acid Expansion of Bovine Serum Albumin	<i>Donald J. Winzor, Christopher L. Ford, and Lawrence W. Nichol</i>	15
Quantitative Affinity Chromatography: Further Developments in the Analysis of Experimental Results from Column Chromatography and Partition Equilibrium Studies	<i>Philip J. Hogg and Donald J. Winzor</i>	55
Self-Association of Sperm Whale Metmyoglobin	<i>Larry D. Ward and Donald J. Winzor</i>	125
Kinetic Studies on the Reduction of Iron(III)Deuteroporphyrin-Human Serum Albumin Complex with Dithionite Ion	<i>Amy H. Chu and Taffy J. Williams</i>	129
Binding of Simple Carbohydrates and Some <i>N</i> -Acetylglucosamine-Containing Oligosaccharides to <i>Erythrina cristagalli</i> Agglutinin as Followed with a Fluorescent Indicator Ligand	<i>Hilde De Boeck, Frank G. Loontjens, Halina Lis, and Nathan Sharon</i>	297

PLANT BIOCHEMISTRY AND PHOTOSYNTHESIS

Purification and Properties of L-Alanine:4,5-dioxovalerate Aminotransferase from <i>Chlorella regularis</i>	<i>Yuzo Shioi, Machi Nagamine, and Tsutomu Sasa</i>	117
---	---	-----

PROTEIN STRUCTURE AND FUNCTION

5-Azidoindole Binding to the <i>Escherichia coli</i> Tryptophan Synthase $\alpha_2\beta_2$ Complex	<i>Mary L. Napier and John K. Hardman</i>	206
The Primary Structure of Spinach Acyl Carrier Protein	<i>Tsung Min Kuo and John B. Ohlrogge</i>	290

REGULATION OF METABOLISM AND OF ENZYME ACTION

Differential Effects of <i>N</i> -Acetylglutamate on Citrulline Synthesis by Coupled and Uncoupled Mitochondria	<i>Natalie S. Cohen and Chia-Wei Cheung</i>	31
Inhibition of the Oxidation of Acetaldehyde and Formaldehyde by Hepatocytes and Mitochondria by Crotonaldehyde	<i>Elisa Dicker and Arthur I. Cederbaum</i>	187
Turnover of Proteoglycans in Cultures of Bovine Articular Cartilage	<i>Margaret A. Campbell, Christopher J. Handley, Vincent C. Hascall, Robert A. Campbell, and Dennis A. Lowther</i>	275

NUMBER 2, NOVEMBER 1, 1984

COMMUNICATION

Phosphorylation of Prostatic Nuclear Matrix Proteins Is Under Androgenic Control	<i>Said A. Goueli and Khalil Ahmed</i>	646
--	--	-----

BIOLOGICAL OXIDATIONS AND BIOENERGETICS

- Elevation of Tissue Coenzyme Q (Ubiquinone) and Cytochrome *c* Concentrations by Endurance Exercise in the Rat
Robert E. Beyer, Pedro G. Morales-Corral, Bobbi J. Ramp, Kevan R. Kreitman, Michael J. Falzon, Stephen Yung Shik Rhee, Thomas W. Kuhn, Mona Stein, Mitchell J. Rosenwasser, and Kenneth J. Cartwright 323
- Regulation of Pyruvate Oxidation in Blowfly Flight Muscle Mitochondria: Requirement for ADP
Bernard A. Bulos, Barbara J. Thomas, Shri P. Shukla, and Bertram Sacktor 382
- Oxidation of Anionic Nitroalkanes by Flavoenzymes, and Participation of Superoxide Anion in the Catalysis
Toshiko Kido and Kenji Soda 468

ENZYME MECHANISMS AND METABOLISM

- Lapachol Inhibition of Vitamin K Epoxide Reductase and Vitamin K Quinone Reductase
Peter C. Preusch and John W. Suttie 405
- The Time Course of the Interaction of Sheep Liver Cytoplasmic Aldehyde Dehydrogenase with 2,2'- and 4,4'-Dithiodipyridine: A Comparison with the Action of Disulfiram
Trevor M. Kitson 487
- Benzamidomethaneboronic Acid: Synthesis and Inhibition of Chymotrypsin
Payman Amiri, Robert N. Lindquist, Donald S. Matteson, and Kizhakethil Mathew Sadhu 531
- The Carbon Dioxide Hydration Activity of the Sulfonamide-Resistant Carbonic Anhydrase from the Liver of Male Rat: pH Independence of the Steady-State Kinetics
Gautam Sanyal 576
- Chemical Modification of Dipeptidyl Peptidase IV: Involvement of an Essential Tryptophan Residue at the Substrate Binding Site
Minoru Harada, B. Yukihiro Hiraoka, Kayoko M. Fukasawa, and Katsuhiko Fukasawa 622

GLYCOPROTEINS AND GLYCOLIPIDS

- Enzymatic Sulfation of *N*-Glycosidically Linked Oligosaccharides by Endothelial Cell Membranes
Roberta K. Merkle and Aaron Heifetz 460
- Role of the Carbohydrate Part of Yeast Acid Phosphatase
Slobodan Barbarić, Vladimir Mrša, Blanka Ries, and Pavao Mildner 567

HORMONE STRUCTURE AND FUNCTION

- Regulation of Insulin Binding and Stimulation of Sugar Transport in Cultured Human Fibroblasts by Sugar Levels in the Culture Medium
Ralph J. Germinario, Shiro Ozaki, and Norman Kalant 559
- Relationship between the Subunit Structure of Insulin Receptor and Its Competence to Bind Insulin and Undergo Phosphorylation
Dennis T. Pang, Sidney D. Lewis, Baldev R. Sharma, and Jules A. Shafer 629

IMMUNOLOGY

- Structural Analysis of the Charge Heterogeneity of Human Interleukin 1
Teresa Krakauer 371

LIPIDS AND PROSTAGLANDINS

- Identification of an Unusual Cyclooxygenase Metabolite of Arachidonic Acid in Rabbit Renal Medulla *Aubrey R. Morrison and Jan R. Crowley* 413
- Oviduct Dolichyl Phosphate Phosphatase: Estrogen Effects and a Possible Biosynthetic Role *Patricia A. DeRosa and John J. Lucas* 537

MEMBRANES, CELL SURFACES, AND RECEPTORS

- Amino Acid Transport in a Kidney Epithelial Cell Line (MDCK): Characteristics of Na⁺/Amino Acid Symport in Membrane Vesicles and Basolateral Localization in Cell Monolayers *Julia E. Lever, Brian G. Kennedy, and Ranga Vasan* 330
- Characterization of the ATPase Activities of Myosins Isolated from the Membrane and the Cytoplasmic Fractions of Human Platelets *Itzhak Peleg, Andras Muhlrads, Amiram Eldor, Ute Groschel-Stewart, and Itzhak Kahane* 442

OXYGENASES, MICROSOMES, AND P-450 REACTIONS

- Purification and Characterization of an Extracellular H₂O₂-Requiring Diarylpropane Oxygenase from the White Rot Basidiomycete, *Phanerochaete chrysosporium* *Michael H. Gold, Masaaki Kuwahara, Andrew A. Chiu, and Jeffrey K. Glenn* 353

PHYSICAL BIOCHEMISTRY

- Selectivity in Rhodopsin-Phospholipid Interactions *Thomas H. Fischer and Theodore P. Williams* 394
- Spectroscopic Evidence for Anthracenedione Antineoplastic Agent Self-Association and Complex Formation with Flavin Nucleotides *Evan D. Kharasch and Raymond F. Novak* 497
- The Determination of the Separation of Tyrosine-99 and Tyrosine-138 in Calmodulin: Radiationless Energy Transfer *Robert F. Steiner and Mahnaz Motevalli-Alibadi* 522
- A Comparison of van't Hoff and Calorimetric Heats of Binding to DNA Using an Ethidium Selective Electrode *Bryan B. Sauer, Russell A. Flint, J. B. Justice, and C. G. Trowbridge* 580
- Analysis of Self-Association of Bovine Neurophysins by Gel Chromatography *Barbara A. Whittaker and Norma M. Allewell* 585

PLANT BIOCHEMISTRY AND PHOTOSYNTHESIS

- Malonyl-Coenzyme A: Isoflavone 7-O-Glucoside-6"-O-malonyltransferase from Roots of Chick Pea (*Cicer arietinum* L.) *Johannes Koester, Reinhild Bussmann, and Wolfgang Barz* 513

PROTEIN STRUCTURE AND FUNCTION

- Proteolytic Dissection of Rat Brain Hexokinase: Determination of the Cleavage Pattern during Limited Digestion with Trypsin *Paul G. Polakis and John E. Wilson* 341

The Primary Structure of the COOH-Terminal Half of Cholera Toxin Subunit A ₁ Containing the ADP-Ribosylation Site	
<i>Qi-Chang Xia, David Chang, Russell Blacher, and Chun-Yen Lai</i>	363
Enhancement of Acetaldehyde-Protein Adduct Formation by L-Ascorbate	
<i>Dean J. Tuma, Terrence M. Donohue, Jr., Victor A. Medina, and Michael F. Sorrell</i>	377
Isolation, Characterization, and Esterase and CO ₂ Hydration Activities of Ubiquitin from Bovine Erythrocytes	
<i>Hajime Matsumoto, Naoyuki Taniguchi, and Harold F. Deutsch</i>	426
Anomalous Behavior of Bovine α_{s1} - and β -Caseins on Gel Electrophoresis in Sodium Dodecyl Sulfate Buffers	
<i>Lawrence K. Creamer and Tom Richardson</i>	476
Homology between Regulatory Subunits of Type I Cyclic AMP-Dependent Protein Kinases from Bovine and Murine Cells	
<i>Robert A. Steinberg</i>	546
Comparison of the State of Deoxyhemoglobin S Molecules in Solution and in Fibers by Hydrogen Exchange Kinetics	
<i>Ben E. Hallaway and Philip E. Hallaway</i>	552
Comparative Chemical and Immunological Characterization of Five Lipolytic Enzymes (Carboxylesterases) from Rat Liver Microsomes	
<i>Rolf Mentlein, Marion Schumann, and Eberhard Heymann</i>	612
Reconstitution of Calpain I and Calpain II from Their Subunits: Interchangeability of the Light Subunits	
<i>Takanobu Kikuchi, Noboru Yumoto, Takashi Sasaki, and Takashi Murachi</i>	639

PROTEIN SYNTHESIS AND POST-TRANSLATIONAL PROCESSING

Purification of Various Forms of Elongation Factor 1 from Rabbit Reticulocytes	
<i>Jose Francisco Carvalho, Maria Da Gloria Da Costa Carvalho, and William C. Merrick</i>	591
Biological Characterization of Various Forms of Elongation Factor 1 from Rabbit Reticulocytes	
<i>Maria Da Gloria Da Costa Carvalho, Jose Francisco Carvalho, and William C. Merrick</i>	603

REGULATION OF METABOLISM AND OF ENZYME ACTION

Modulation of the Activity of NAD Malic Enzyme from <i>Solanum tuberosum</i> by Changes in Oligomeric State	
<i>Scott D. Grover and Randolph T. Wedding</i>	418
Identification of Calmodulin-Sensitive and Calmodulin-Insensitive Adenylate Cyclase in Rat Kidney	
<i>Sorel Sulimovici, Lawrence M. Pinkus, Frank I. Susser, and Martin S. Roginsky</i>	434
Regulation of the Nitrate Reductase Level in <i>Anacystis nidulans</i> : Activity Decay under Nitrogen Stress	
<i>Antonia Herrero, Enrique Flores, and Miguel G. Guerrero</i>	454
AUTHOR INDEX FOR VOLUME 234	651

The Subject Index for Volume 234 will appear in the December 1984 issue as part of a cumulative index for the year 1984.

Instructions to Authors¹

Archives of Biochemistry and Biophysics is an international journal dedicated to the dissemination of fundamental knowledge in all areas of biochemistry and biophysics. Manuscripts are welcome that contain new and significant information of general interest to workers in these fields. Sufficient detail must be included to enable others to repeat the work.

Manuscripts should be written in clear, concise and grammatical English and should be submitted in triplicate (one original and two photocopies), including three sets of figures, to:

Archives of Biochemistry and Biophysics
Editorial Office
Seventh Floor
1250 Sixth Avenue
San Diego, California 92101

Failure to receive the required number of copies of the manuscript may delay review. *In the case of rejected manuscripts only one copy of the manuscript will be returned to the author.*

Original papers only will be considered. Manuscripts are accepted for review with the understanding that the same work has not been published, that it is not under consideration for publication elsewhere, and that its submission for publication has been approved by all of the authors and by the institution where the work was carried out. Abstracts of oral or poster presentations are not considered to constitute previous publication. Presentation of material in preliminary communications normally will not preclude publication of a full paper in *Archives*, provided that the full paper contains additional information that justifies its publication and does not repeat the presentation of the same data that supported the preliminary communication. The manuscript should be accompanied by copies of all preliminary communications and of all relevant manuscripts that are in press or under editorial consideration by another journal. Authors must verify the wording of any cited personal communication with the persons who supplied the information and obtain approval for the use of their names in connection with the quoted information or for the citation of unpublished work; written evidence of such approval should accompany the manuscript. All material published in *Archives* represents the opinions of the authors and should not be construed to reflect the opinions of the Editors or the Publisher.

Authors should suggest competent reviewers in their field and may also suggest individuals whom they wish to have excluded from the review process. Contributors will receive decision letters from the Executive Editor. Revised manuscripts and correspondence concerning such manuscripts should be sent to the Executive Editor at the address indicated on the decision letter. Revised manuscripts should be accompanied by a copy of the unrevised version.

Many acceptable papers require minor revision or condensation. It is in the mutual interest of both the authors and the journal that amended manuscripts be returned promptly. A revised paper will retain its original date of receipt only if it is received by the Executive Editor within 2 months of the date of return to the author.

Authors submitting a manuscript do so on the understanding that if it is accepted for publication, copyright in the article, including the right to reproduce the article in all forms and media, shall be assigned exclusively to the Publisher. The Publisher will not refuse any reasonable request by the author for permission to reproduce any of his or her contributions to the journal.

Communications offer a means of early publication of work of such importance that rapid release is warranted. Normally they should not exceed 15 manuscript pages in length (including text, bibliography, tables, and figures). The review and printing of such papers will be expedited to provide earliest possible publication.

Form of Manuscript. Manuscripts should be typewritten and double-spaced throughout on one side of 8.5 × 11-in. white paper, with 1-in. margins on all sides. All pages should be numbered consecutively.

Subject Areas. Authors should specify on page 1 of the manuscript the Subject Area of the article submitted. See the back cover for the listing of the Subject Areas.

Page 1 should contain the article title, author(s), affiliation(s), a short running title (abbreviated form of title) of less than 65 characters including letters and spaces, the appropriate subject category for listing in the Table of Contents, suggestions for index list entries, and the name and complete mailing address (and telephone number if possible) of the person to whom correspondence should be sent.

Page 2 should contain a short abstract of 50–250 words.

Editorial style should conform to the *Handbook for Authors* (American Chemical Society).

Footnotes to the text should be identified by superscript Arabic numerals and should be typed double-spaced on a separate sheet: footnotes to tables should be identified by superscript lowercase italic letters (^{a,b}, etc.) and placed at the bottom of the table.

¹ An extended Instructions to Authors is published in the January issue of *Archives of Biochemistry and Biophysics*. Reprints are available from the Editorial Office upon request. Authors should consult the extended Instructions for details on nomenclature, IUPAC-IUB rules and recommendations, and accepted abbreviations.

Tables should be numbered with Roman numerals and cited consecutively in the text. Each table should be titled and typed double-spaced on a separate sheet. Units must be clearly indicated for each of the entries in the table.

Authors can submit complex tables and mathematical material as camera-ready copy. In this way, they are spared multiple, tedious proofreadings and the chance of error is reduced. Tables submitted as camera-ready copy should be typed single spaced whenever possible and preferably submitted as 5 × 7-in. glossy prints.

Figures should be cited consecutively in the text by Arabic numerals. Legends should be typed double-spaced on a separate sheet. All figures and illustrations are to be submitted in such form as to permit photographic reproduction without retouching or redrawing. Line drawings should be professionally drafted and no larger than 8.5 × 11 in. Letters and numbers should be at least $\frac{3}{16}$ in. (4 mm) in height (Leroy lettering size 200). Glossy prints of figures properly prepared are acceptable. Illustrations in color can be accepted only if the authors defray the cost.

References should be cited in the text by an Arabic numeral in parentheses and listed at the end of the paper in numerical order typed double-spaced on a separate sheet. Abbreviations of journal titles should conform to those of *Chemical Abstracts Service Source Index*, 1980. Please note the following examples.

1. JONES, J. B., DILWORTH, G. L., AND STADTMAN, T. C. (1979) *Arch. Biochem. Biophys.* **195**, 255-260.
2. METZLER, D. E. (1977) *Biochemistry: The Chemical Reaction of Living Cells*, p. 298, Academic Press, New York.
3. HARRINGTON, W. F. (1979) in *The Proteins* (Neurath, H., and Hill, R. L., eds.), Vol. 4, pp. 246-409, Academic Press, New York.

Miniprint supplements are an effective way of presenting supportive data. They are printed from plates made by photographic reduction from typed pages provided by the author. Types of data that have been published as miniprint supplements include analyses relevant to studies of amino acid or polynucleotide sequences, details of chemical syntheses, preparation of enzymes, extended statistical or mathematical discussions, and X-ray diffraction data. The miniprint supplement is published in the journal, immediately following the parent paper, and is included in the reprints. Since the miniprint supplement is produced from camera-ready copy supplied by the authors with no redaction or editorial changes it is important that the copy be letter perfect and conform to the style of the journal. *Authors will not be permitted to make changes to the miniprint supplement at the proof stage. Any changes necessary in the proof must be made as a typeset "Note added in proof."*

Proofs will be sent to the author, with a reprint order form. Authors will be charged for extensive alterations.

Reprints. Fifty reprints of each article will be provided free of charge. Additional reprints may be purchased.